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LICHEN NOTES No. 7.

Yukon Lichens.

G. K. MERRILL.

The Lichens enumerated below were collected by Prof. John Macoun during July and August, 1902, in the region around Dawson City, upper Yukon. So far as is known this is the first list of these plants for the locality. In working over the material, there has been found a number of forms new to the Alaskan district and a few heretofore unrecorded as occurring in continental North America. The collection is remarkable for the abundance of its distinctly sub-arctic species, although the district explored is situated sixty-four degrees north of the equator. This latitude might well be expected to furnish numerous exclusively arctic forms, but it will be noted that such of these as are enumerated were for the most part found on "the Dome," a mountain four thousand feet in height situated about fifty miles from Dawson. No information regarding the climatic conditions prevailing in the district is possessed, and comment appended to the names is along other lines. Tuckerman's generic arrangement and sequence of species is adhered to, except in *Parmelia* and *Cladonia*.

Cetraria (Ach.) Tuck.

C. (Dactylina) ARCTICA (Hook.) Tuck. With mosses, "the Dome," nos. 2 and 5. In no. 2 attaining to 5 cent. in height, and provided with lateral pustular ramuli, while no. 5 is smaller and unbranched. Infertile. Reported from various Alaskan localities in most cases maritime.

C. (Eucetraria) ISLANDICA (L.) Ach. On humus mixed with other lichens. Hunker Creek, nos. 8 and 9, fertile. The margins of the laciniae more or less connivent and beset with elongated spinules. Both numbers intermediate with var. *crispa*.

C. (Eucetraria) RICHARDSONII Hook. On earth, "the Dome;" no. 13, infertile. The identification made positive through comparison with Richardson's specimens, by kindness of Prof. W. G. Farlow. Not previously reported from the Alaskan region.

C. (Eucetraria) CUCULLATA (Bell.) Ach. On humus, "the Dome," no. 6 infertile. Hue Lich. Ex. Eur. 1, p. 85 reassociates this species with *Cetraria*. Its affinities are clearly with that section which shall include *C. Islandica*, for not only does the latter furnish forms distinctly similar in lobation, but *C. cucullata* is in high latitudes sometimes found with spinulose margins. This condition is noted in the present number.

C. (Eucetraria) NIVALIS (L.) Ach. On humus, Mt. Moosehead near Dawson, no. 7, infertile. Hue also reaffirms this species to *Cetraria*. Excellent reasons for this view may be found in West Greenland Lichens, Lindsay, Trans. Linn. Soc. vol. XXVII, 1869, p. 322.

C. (Platysma) FAHLUNENSIS (L.) Schaer. On rocks, Hunker Creek, nos. 35 and 36; Bonanza Creek, no. 11; and "the Dome," no. 12. All fertile but no. 35.

C. (*Platysma*) JUNIPERINA (L.) Ach. var. TERRESTRIS Schaer. On naked earth and among mosses, Bonanza Creek, no. 3, infertile. Not mentioned in the Alaskan list of Miss Cummings.

C. JUNIPERINA var. PINASTRI Ach. On birch bark, Hunker Creek, no. 1, infertile.

Alectoria (Ach.) Nyl.

A. (*Eualectoria*) OCHROLEUCA (Ehrh.) Nyl. On earth, "the Dome," no. 14, infertile. Miss Cummings seems to have discriminated *A. ochroleuca* from its variety *rigida* (Vill.) Fr. Ehrhart's name has priority, and *rigida* is merely a synonym.

A. (*Bryopogon*) DIVERGENS (Ach.) Nyl. On earth, "the Dome," no. 15, infertile.

A. (*Bryopogon*) JUBATA (L.) Ach. var. CHALYBEIFORMIS (L.) Ach. On old logs, Hunker Creek, no. 16; on branches, Bonanza Creek, no. 17, both infertile. Another specimen found on spruces, Dawson, no. 19, is referable to var. *lanestris* Ach.

Parmelia (Ach.) Hue.

P. (*Menegazzia*) PHYSODES (L.) Ach. On dead wood, Hunker Creek, no. 28, infertile.

P. PHYSODES form LABROSA (Ach.) Arn. On dead spruces, Bonanza Creek, no. 29, infertile. Not previously reported from the district.

P. PHYSODES form AUSTERODES (Nyl.) Merrill. *P. austeroles* Nyl. Flora, 1881, p. 537. On mosses, "the Dome," no. 31, quite characteristic. On dead wood, Hunker Creek, no. 30, like form *platyphylla*, both infertile. Black edged as in *P. vittata* (Ach.) Nyl. Both plants resemble the species except for coloration.

P. (*Euparmelia*) STYGIA (L.) Ach. On rocks, "the Dome," no. 45, infertile.

P. (*Euparmelia*) CONSPERSA (Ehrh.) Ach. form STENOPHYLLA (Ach.) Merrill. On rocks, Hunker Creek, no. 26, infertile.

P. (*Euparmelia*) CENTRIFUGA Ach. On rocks, Bonanza Creek, no. 24, fertile no. 25, infertile; Hunker Creek, no. 21, infertile. Not mentioned in the Cummings list.

P. (*Euparmelia*) DIFFUSA (Web.) Th. Fr. On bark and dead wood, Hunker Creek, no. 22. Recorded by Miss Cummings from several Alaskan localities under the synonym *P. ambigua*.

P. (*Euparmelia*) HYPEROPTA Ach. On dead wood, Hunker Creek, no. 23; on rotten wood, West Dawson, no. 40, both fertile. *P. ambigua albescens* of the Cummings list.

P. (*Euparmelia*) OLIVACEA (L.) Ach. On birch bark, Bonanza Creek, no. 27, infertile. No reaction observed with K or C.

P. (*Euparmelia*) SAXATILIS (L.) Ach. var. OMPHALODES (L.) Fr. form PANNIFORMIS (Ach.) Nyl. On rocks, Hunker Creek, no. 37, infertile. Not previously recognized as an Alaskan form.

P. (*Euparmelia*) SULCATA Tayl. On trees, West Dawson, nos. 32 and 33, infertile; no. 34, on rocks, "the Dome," is panniform and more or less denigrate.

Physcia (Schreb.) Th. Fr.

P. (*Euphyscia*) *PULVERULENTA* (Schreb.) Nyl. var. *MUSCIGENA* (Whlnb.) Nyl. On mosses, West Dawson, no. 39, and Bonanza Creek, no. 38, both infertile.

P. (*Euphyscia*) *OBSCURA* (Ehrh.) Nyl. On rocks, Hunker Creek, no. 43, and West Dawson, no. 44, both infertile.

P. *OBSCURA* var. *ULOTHRIX* (Ach.) Nyl. On mosses, Hunker Creek, no. 42, infertile. The receptacle hirsute beneath, and the whole plant very dark colored.

Umbilicaria Hoffm.

U. (*Gyrophora*) *ARCTICA* Ach. U. *proboscidea arctica* Tucks. Syn. On rocks, "the Dome," no. 48, fertile and characteristic. Not previously reported from the Alaskan region.

U. (*Gyrophora*) *ANTHRACINA* (Wulf.) Schaer. var. *RETICULATA* Schaer. On rocks, "the Dome," no. 47, fertile, the apothecia elevated. Not previously reported from the region.

U. (*Gyrophora*) *HYPERBOREA* Hoffm. On rocks, "the Dome," no. 49, fertile.

U. (*Gyrophora*) *VELLEA* (L.) Nyl. On rocks, "the Dome," no. 50, infertile. Specimen poor and complicate-lobed. Only U. *vellea tylorrhiza* Nyl. previously recorded from the Alaskan district.

Nephroma Ach.

N. (*Eunephroma*) *ARCTICUM* (L.) Fr. On earth, Bonanza Creek, no. 54, fertile.

N. (*Nephromium*) *EXPALLIDUM* Nyl. On earth, Hunker Creek, no. 55, fertile.

N. (*Nephromium*) *HELVETICUM* Ach. On rocks, Hunker Creek, no. 56, fertile. Not previously reported from Alaskan district.

N. (*Nephromium*) *LAEVIGATUM* Ach. On rocks, Hunker Creek, no. 52, infertile.

N. *LAEVIGATUM* var. *PARILE* (Ach.) Nyl. On rocks, Bonanza Creek, no. 53, infertile.

Peltigera Willd.

P. (*Peltidea*) *VENOSA* (L.) Hoffm. On earth, Hunker Creek, no. 117, fertile.

P. (*Peltidea*) *APHTHOSA* (L.) Hoffm. On earth, West Dawson, no. 118, infertile.

P. (*Eupeltigera*) *SCUTATA* (Dicks.) Leight. On earth, Hunker Creek, no. 122, infertile, spongiose beneath and distinctly limbate-soresiate. Previously reported from Kotzebue Sound.

P. (*Eupeltigera*) *PULVERULENTA* (Tayl.) Nyl. On earth, Bonanza Creek no. 119, infertile. The cortex granulate.

P. (*Eupeltigera*) *RUFESCENS* (Neck.) Hoffm. On earth, Dawson, no. 121, and Hunker Creek, nos. 120 and 120a, the latter fertile.

P. *RUFESCENS* sub-sp. *SPURIA* (Ach.) Nyl. Syn. p. 325. On earth, Hunker Creek, no. 123, fertile.

Solorina Ach.

S. CROCEA (L.) Ach. On earth, "the Dome," no. 127, fertile.

S. SACCATA (L.) Ach. On earth, Hunker Creek, no. 126, fertile.

Pannaria (Delise) Tuck.

P. Psoroma HYPNORUM (Hoffm.) Koerb. On humus and charred wood, Dawson, no. 129; spores $17-20 \times 10-11\mu$, ovoid-ellipsoid and colorless. On earth and wood, Hunker Creek, no. 128, spores $14-20 \times 8-10\mu$.

P. (Eupannaria) BRUNNEA (Sw.) Mass. On earth, Bonanza Creek, no. 131; spores $18-23 \times 9-12\mu$, ovoid-ellipsoid and colorless. On earth, Hunker Creek, no. 130.

Collema Ach.

C. (Eucollema) MELAENUM Ach. On earth, Hunker Creek, no. 167, spores $17-23 \times 10-12\mu$, broad-ellipsoid, muriform and decolorate.

Leptogium (Ach.) Fr., Nyl.

L. (Mallotium) SATURNINUM (Dicks.) Nyl. var. *TOMENTOSUM* Hoffm. On rocks, Bonanza Creek, no. 163, infertile.

Placodium (DC.) Naeg. & Hepp.

P. (Euplacodium) ELEGANS (Link) DC. On mosses, Bonanza Creek, no. 79, fertile.

P. (Callophisma) CERINUM (Hedw.) Naeg. & Hepp. var. *PYRACEA* Ach. On willow bark, West Dawson, no. 80, spores $11-13 \times 6-7\mu$.

P. (Callophisma) JUNGERMANNIAE Vahl. On mosses and fragment of *Peltigera*, Hunker Creek, nos. 81 and 171, spores $17-20 \times 7-10\mu$.

P. (Callophisma) SINAPISPERMUM (Auct.) Hepp. On mosses, Hunker Creek, no. 82, spores $20-21 \times 10-12\mu$.

Lecanora (Ach.) Tuck.

L. (Eulecanora) SUBFUSCA (L.) Ach. var. *HYPNORUM* Schaer. On mosses, Bonanza Creek, nos. 133 and 134, spores $11-15 \times 8-10\mu$.

L. SUBFUSCA var. *COILOCARPA* Ach. On bark of trees, Hunker Creek, no. 143.

L. (Eulecanora) ATRA (Huds.) Ach. On rocks and trunks of trees. Hunker Creek, nos. 139 and 142, spores of no. 142, $10-17 \times 4-9\mu$; those of no. 139 much smaller, $10-12 \times 4-5\mu$.

L. (Eulecanora) VARIA (Ehrh.) Nyl. Tuckerman's a. On various trees, Hunker Creek, no. 139a, spores $10-12 \times 5\mu$.

L. (Haematomma) VENTOSA (L.) Ach. On rocks, "the Dome," no. 139, spores $33 \times 2\mu$, acicular and pluriseptate.

L. (Ochrolechia) PALLESCENS (L.) Schaer. On wood, Bonanza Creek, no. 144, spores $77-83 \times 40-48\mu$, broad ellipsoid.

L. (Ochrolechia) TARTAREA (L.) Ach. On mosses, Hunker Creek, no. 137, spores $60-63 \times 27-37\mu$, me CaCl^+ ; on rocks, "the Dome," no. 88, infertile.

Rinodina (Mass.) Tuck.

R. (Eurinodina) TURFACEA (Wahl.) Nyl. On mosses, Hunker Creek, no. 135, spores $40-45 \times 12-17\mu$, variously shaped, even showing a tendency toward muriform conditions.

R. (Eurinodina) SOPHODES (Ach.) Nyl. emend. var. *CONFRAGOSA* (Ach.) Nyl. On birch bark, Hunker Creek, no. 141, spores $27-37 \times 11-15\mu$; on various trees, Moosehead Mt., Dawson, no. 140, spores $27 \times 13\mu$.

R. SOPHODES var. *EXIGUA* (Ach.) Fr. On willow bark, West Dawson, no. 151, spores $13-20 \times 7-9\mu$. Not mentioned in the Cummings list.

Pertusaria DC.

P. DACTYLINA (Ach.) Nyl. On mosses, "the Dome," no. 138, spores $225-250 \times 85-100\mu$, solitary.

P. GLOMERATA (Ach.) Schaer. On rocks. "the Dome," no. 86, spores $164-180 \times 64-70\mu$, invested with a halo, and in two's.

Urceolaria (Ach.) p.p. Nyl.

U. SCRUPOSA (L.) Nyl. On rocks, "the Dome," no. 84, spores $37 \times 20\mu$, muriform. Seems to be new for the region.

Stereocaulon Schreb.

S. PASCHALE (L.) Fr. In bogs, Bonanza Creek, no. 161.

S. TOMENTOSUM (Fr.) Th. Fr. On rocks, West Dawson, no. 160; on mosses in bog, Bonanza Creek, no. 159; on rocks, Hunker Creek, no. 158.

S. TOMENTOSUM var. *ALPINUM* Th. Fr. On rocks, "the Dome," no. 162a.

Pilophorus Th. Fr.

P. CEREOLOUS (Ach.) in Tuckerman's sense, var. *ACICULARIS* Ach. & Tuck. On rocks, Bonanza Creek, no. 157. The spores five times longer than thick.

Cladonia Hill.

Sub-genus *CLADINA* (Nyl.) Wain.

C. RANGIFERINA (L.) Web. On earth, West Dawson, no. 91.

C. RANGIFERINA forma *leucosticta* Merrill f. nov. In a bog, Hunker Creek, nos. 112 and 113. KHO+ Verrucose-maculate and between the verrucae semi-pellucid.

C. SYLVATICA (L.) Rabenh. var. *SYLVESTRIS* Oed. On earth, Hunker Creek, no. 92.

C. SYLVATICA f. *VALIDA* Rabenh. In a bog, Hunker Creek, no. 93. Not previously reported from America.

C. ALPESTRIS (L.) Rabenh. m. *SPHAGNOIDES* (Hepp) Wain. On earth, Bonanza Creek, no. 90.

Sub-genus *CENOMYCE* (Ach.) Th. Fr.

Section *COCCIFERA* Del.

C. COCCIFERA (L.) Willd. var. *STEMMATINA* Ach. form *GRANDIS* Krempf. On earth, Hunker Creek, no. 59. Not previously reported from North America.

C. DEFORMIS Hoffm. m. *EXTENSA* (Hoffm.) Wain. On earth in bogs, West Dawson, no. 57; on earth, Hunker Creek, no. 57a. Although not previously reported under this combination, it is probable that all the recorded Alaskan examples belong here.

Section *UNCIALES* (Del.) Wain.

C. AMAUROCRAEA (Flk.) Schaer. form *CELOTEA* Ach. In peat bogs, Bonanza Creek, no. 100; on earth, Bonanza Creek, nos. 60, 61 and 68. Not previously reported under this combination from the Alaskan district. This

is the scyphiferous state of the species and the one most commonly met with in the mountains of the eastern United States.

C. AMAUROCRAEA form *OXYCERAS* Ach. In a bog, Hunker Creek, no. 67. Previously unreported.

C. AMAUROCRAEA form *FURCATIFORMIS* (Nyl.) Wain. In a bog, Hunker Creek, no. 110. Not previously reported.

C. UNCIALIS (L.) Web. m. *TURGESSENS* Del. sensu Wainio. On earth and in a bog, Hunker Creek, nos. 68 and 105; on earth, "the Dome," no. 101. All intermediate with *C. uncialis* v. *adunca* Ach. Typical specimens of *m. turgescens* are found in the following numbers; on earth, Hunker Creek, no. 64; Bonanza Creek, no. 102; and interspersed with mosses, "the Dome," no. 4.

Section *CHASMARIAE* (Ach.) Flk.

C. FURCATA (Huds.) Schrad. var. *RACEMOSA* (Hoffm.) Flk. On earth in a bog, Hunker Creek, nos. 114 and 115, and West Dawson, no. 111.

C. FURCATA *RACEMOSA* form *CORYMBOSA* (Ach.) Nyl. In a bog, Hunker Creek, no. 95.

C. multiformis Merrill in herb. nom. nov. In a bog, Bonanza Creek, no. 96. In part synonymous with *C. furcata* a. *crispata* Flk. of Tucker-man's Synopsis.

C. CRISPATA (Ach.) Flot form *INFUNDIBULIFERA* (Schaer.) Wain. In a bog, Hunker Creek, no. 97. Intermediate with f. *dilacerata* (Schaer.) Malbr., cortex continuous.

C. CRISPATA *INFUNDIBULIFERA* sub-form **albo-punctata** Merrill f. nov. In a bog, Hunker Creek, nos. 104 and 108. Corticated in much the same manner as *C. rangiferina* f. *leucostica*, and found in the same-locality.

C. CRISPATA f. *SCHISTOPODA* Wain. In a bog, Hunker Creek, no. 62.

C. CRISPATA var. *GRACILESCENS* (Rabenh.) Wain. In a bog, Hunker Creek, no. 107. All the *crispata* forms above enumerated hitherto unrecorded for the Alaskan region under the combinations employed.

C. CENOTEA (Ach.) Schaer. form *CROSSOTA* (Ach.) Nyl. On earth, Dawson, nos. 94 and 103 in part; in a bog, Hunker Creek, no. 106.

Section *PODOSTELIDES* (Wallr.) Wain.

C. CARIOSA (Ach.) Spreng. form *CRIBOSA* (Wallr.) Wain. On earth, Hunker Creek, no. 74, previously unrecorded for the Alaskan region.

C. CARIOSA m. *CORTICATA* Wain. On earth, West Dawson, no. 75. Only once previously recorded from the Alaskan district.

C. DECORTICATA (Flk.) Spreng. On earth, Hunker Creek, no. 71.

Section *THALLOSTELIDES* Wain.

C. GRACILIS (L.) Willd. var. *DILATATA* (Hoffm.) Wain. On earth, Hunker Creek, no. 65, and West Dawson, no. 66.

C. GRACILIS var. *CHORDALIS* (Flk.) Schaer. On earth, Bonanza Creek, no. 69.

C. CORNUTA (L.) Schaer. On earth, Hunker Creek, nos. 70 and 71.

C. PYXIDATA (L.) Fr var. *NEGLECTA* (Flk.) Mass. On earth, Bonanza Creek, no. 73, and no. 72 from Hunker Creek is an intermediate form between the above and var. *CHLOROPHAEA* Flk.

C. DEGENERANS (Flk.) Spreng. form CLADOMORPHA (Ach.) Wain. On earth and in a bog, Hunker Creek, nos. 98 and 99. Not previously recorded under this combination from the Alaskan region.

Section OCHROLEUCAE Fr.

C. CARNEOLA Fr. On earth, Hunker Creek, no. 58.

Baeomyces Pers. DC.

B. (*Icmadophila*) AERUGINOSUS (Scop.) DC. On mosses, West Dawson, no. 89.

Biatora Fr.

B. (*Eubiatora*) CUPREA (Sommerf.) Fr. On mosses, Bonanza Creek, no. 152, spores 13-15 x 4 μ , oblong-ellipsoid and simple.

B. (*Eubiatora*) VERNALIS (L.) Fr. On dead wood, Hunker Creek, no. 149. Spores 12-15 x 5-6 μ , bilocular; on mosses, Dawson, no. 83; Bonanza Creek, no. 154; Hunker Creek, nos. 150 and 177, spores 12-19 x 4-5 μ , oblong-ellipsoid and simple.

B. (*Bilimbia*) SPHEROIDES (Dicks.) Tuckerm. On earth, Hunker Creek, no. 148, spores 14-17 x 3-4 μ , fusiform and quadrilocular.

Buellia (D.N.) Tuck

B. (*Catolechia*) PULCHELLA (Schrad.) Tuck. On rocks, West Dawson, no. 145, spores 12-17 x 7-9 μ , bilocular and brown. New to the Alaskan region.

B. (*Eubuellia*) PAPILLATA (Sommerf.) Tuck. On earth and rocks, Hunker Creek, no. 155, spores 20-25 x 7-11 μ , bilocular and brown.

B. (*Eubuellia*) MYRIOCARPA (DC.) Mudd. On wood, Hunker Creek, no. 175, spores 16-18 x 7-9 μ , bilocular and brown, hypothecium colorless.

Sphaerophorus Pers.

S. GLOBIFERUS (L.) DC. On earth, "the Dome," no. 169. The nitidescence arctic state.

Normandina Nyl.

N. LAETEVIRENS Turn. On mosses, Hunker Creek, no. 125.

The following named plants were secured in Skagway, by the same collector:

CETRARIA (*Platysma*) GLAUCA (L.) Ach. var. STENOPHYLLA Tuck. On old logs, no. 10.

ALECTORIA (*Bryopogon*) JUBATA (L.) Ach. var. IMPLEXA (Ach.) Th. Fr. Scand. On trees, no. 18. KHO+ yellow. This is *implexa vera* and not the commonly found dark colored form of the United States, the reaction for which is KHO+ fuculent. Only four stations for *implexa vera* are known to the writer for North America.

PHYSICIA STELLARIS (L.) Nyl. On birch bark, no. 41.

NEPHROMA (*Nephromium*) TOMENTOSUM (Hoffm.) Koerb. On rocks, no. 51.

NEPHROMA (*Nephromium*) LAEVIGATUM Ach. var. PARILE (Ach.) Nyl. On rocks, no. 124.

Pertusaria sub-velata Merrill sp. nov. On birch trees, no. 87. Much resembling *P. velata* (Turn.) Nyl. the distinguishing differences being afforded in the elevated *drum-shaped* apothecia of which the disk is brown, white-pruinose, sometimes granulate, and the reaction. The spores are solitary measuring 210-230 x 66-90 μ . Reaction, K $^-$. C $^-$, K(C) $^-$, for *P. velata* K $^-$, C $^-$ red.

SPHAEROPHORUS GLOBIFERUS (L.) DC. On rocks, no. 168.

PILOPHORUS CEREOLUS var. ACICULARIS Tuck. On rocks, no. 156.
Rockland, Maine.